REMARKS

Claims 1-5 are pending. By this Amendment, claims 1-5 are amended. Reconsideration and allowance in view of the above amendments and following remarks are respectfully requested.

Claims 1-2 were rejected under 35 U.S.C. §102(b) over Biblarz et al. (U.S. Patent 4,439,980); and claims 3-5 were rejected under 35 U.S.C. § 103(a) over Biblarz et al. The rejections are respectfully traversed.

Claim 1 recites a method for atomizing a liquid medium. The method comprises supplying the liquid medium to an internal volume of a nozzle body under pressure, wherein the nozzle body is put on ground potential, and applying a pulsed voltage to an electrode, the pulsed voltage bringing about an electrostatic charging of the liquid medium in a magnitude that results in bursting of drops discharged from a nozzle opening due to the electrostatic charge.

Biblarz et al. disclose electrohydrodynamic control of fuel injection in gas turbines. A variable high voltage power supply 31 is coupled to a conductor 24 of an electrode 22 that is positioned immediately downstream of an injector nozzle 10. In operation, when a fuel refined to the specifications for which the combustion unit was designed is introduced into the engine, the variable power supply 31 is set to ground potential so that the conductor 24 in the electrode 22 is at the same potential as the combustion unit. Since there is no potential difference between the fuel emerging from the nozzle 10 and the conductor 24, the spray characteristics of the emerging fuel are not effected by the presence of the electrode 22 in the combustion chamber. The combustion unit should thus operate with the designed-for fuel at its normal efficiency. See column 4, lines 4-14.

When the fuel supplied to the combustion unit is other than the designed-for fuel, in general the operating parameters of the combustion unit such as the air/fuel ratio and the injection pressures are determined by the engine design and optimized for the designed-for fuel. Thus the conventional components of the engine operate in their normal manner at all times. An electric potential is applied to the conductor 24 of the electrode structure 22 by the variable high voltage power supply 31. See column 4, lines 15-25.

Different fuels may require different electrostatic forces to provide spray characteristics which optimize the engine performance for the specific fuel being used. In order to permit efficient operation of the combustion unit with various grades of fuel, it is necessary to determine the appropriate voltage to be applied to the conductor 24 for each grade of fuel. One method of determining the optimum voltage to be applied to the conductor 24 of the electrode 22, is to experimentally determine the optimum voltage level for each grade of fuel and then set the voltage applied to the conductor 24 by the power supply 31 to that predetermined level when the particular grade of fuel is being used. See column 4, lines 41-54. An alternative means of selecting the optimum applied voltage is based on a measurement of an engine operating parameter, in particular, the temperature of the exit gases from the liner 12. See column 4, lines 55-59.

There is no disclosure or suggestion by Biblarz et al. of applying a pulsed voltage to the to the electrode 22. Biblarz et al. disclose that the voltage applied by the variable voltage supply 31 to the electrode 22 varies depending on the grade of the fuel (i.e. its aromatic content), but does not disclose or suggest that the voltage applied by the variable voltage supply 31 is pulsed. In other words, Biblarz et al.

merely disclose varying the magnitude of the voltage depending on the grade of the fuel to be atomized.

Claims 2-5 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Claim 2 recites that the method further comprises varying a duty cycle of the pulsed voltage applied to the electrode, whereby the atomization quality is influenced by changing the duty cycle of the pulsed voltage.

As discussed above, Biblarz et al. do not disclose or suggest applying a pulsed voltage to the electrode 22. Therefore, Biblarz et al. cannot disclose or suggest varying a duty cycle (i.e. the duration of voltage/period duration) of the pulsed voltage.

Claim 3 recites the duty cycle is increased with a reduction of the pressure of the liquid medium, and the duty cycle is reduced when the pressure of the liquid medium is increased.

It is respectfully submitted that Biblarz et al.'s disclosure of varying the applied voltage based on a measurement of an engine operating parameter does not disclose or suggest increasing or decreasing the duty cycle of a pulsed voltage dependent on the pressure of the liquid medium. Biblarz et al. do not apply a pulsed voltage and therefore cannot disclose or suggest varying a duty cycle. Moreover, Biblarz et al. merely disclose varying the magnitude of the applied voltage based on the temperature of the exit gases. Biblarz et al. do not disclose or suggest any variation of the voltage, or a duty cycle, based on the pressure of the liquid medium.

Claim 4 recites the liquid medium comprises liquid fuel in a combustor of a gas turbine, wherein during start-up or partial load operation of the gas turbine, a higher duty cycle is set than during full load operation of the gas turbine.

Biblarz et al. do not apply a pulsed voltage and thus do not disclose or suggest a duty cycle. Biblarz et al. also do not disclose or suggest anything regarding application of a higher duty cycle during start up than during full load operation of a gas turbine.

Claim 5 recites the liquid medium comprises liquid fuel in a combustor of a gas turbine, wherein the atomization quality during partial load operation of the gas turbine is influenced by changing the magnitude of the pulsed voltage applied to the electrode.

Biblarz et al. merely disclose changing the magnitude of the applied voltage depending on the grade of the fuel or based on the measured temperature of the exit gases. Biblarz et al. do not disclose or suggest changing the applied voltage during a partial load operation to influence the atomization quality.

Reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102(b) and 103(a) over Biblarz et al. are respectfully requested.

In view of the above amendments and remarks, Applicants respectfully submit that all the claims are allowable and the entire application is in condition for allowance.

Should the Examiner believe that anything further is necessary to place the application in condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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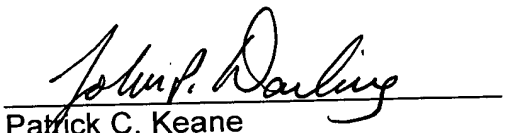
Date: March 9, 2007

By: 

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